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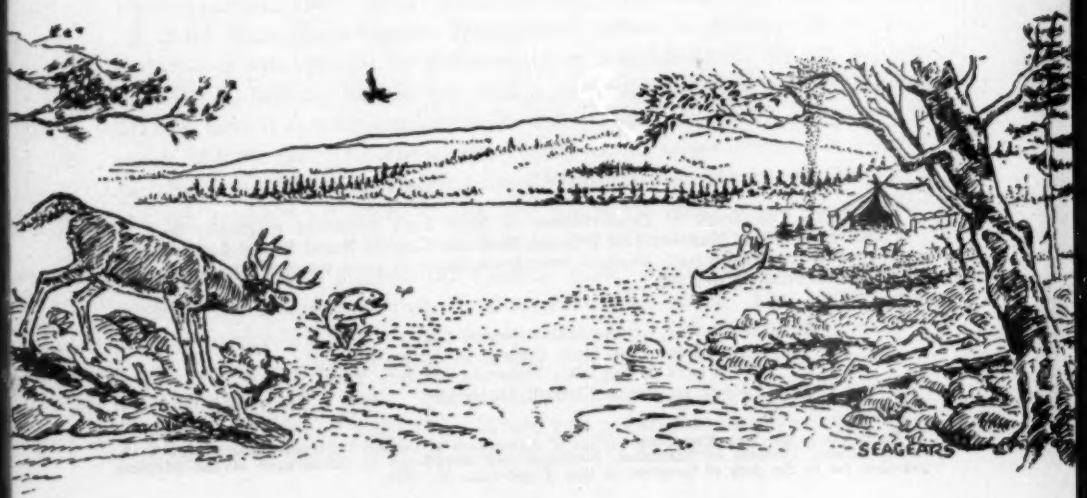
NUMBER 2

The Story of CONSERVATION *in New York*



Cornell Rural School Leaflet

CORNELL RURAL SCHOOL LEAFLET

PUBLISHED BY
THE NEW YORK STATE COLLEGE OF AGRICULTURE AT
CORNELL UNIVERSITY, ITHACA, NEW YORK
W. I. MYERS, DEAN OF THE COLLEGE

THE DEPARTMENT OF RURAL EDUCATION
ANDREW LEON WINSOR, HEAD OF THE DEPARTMENT

THIS NUMBER PREPARED BY
CLAYTON SEAGEARS
SUPERVISED BY
EVA L. GORDON

NOTE: *The Story of Conservation in New York* appeared originally in March, 1946, as Number 4 of Volume 39 of the Cornell Rural School Leaflet. In this reprinting such changes have been made as were necessary to bring the material up to date.

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at Cornell University

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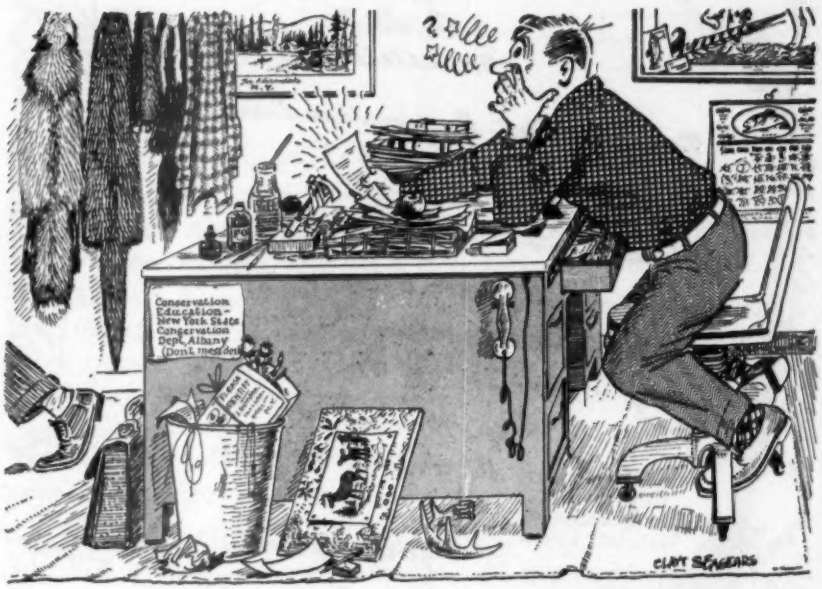
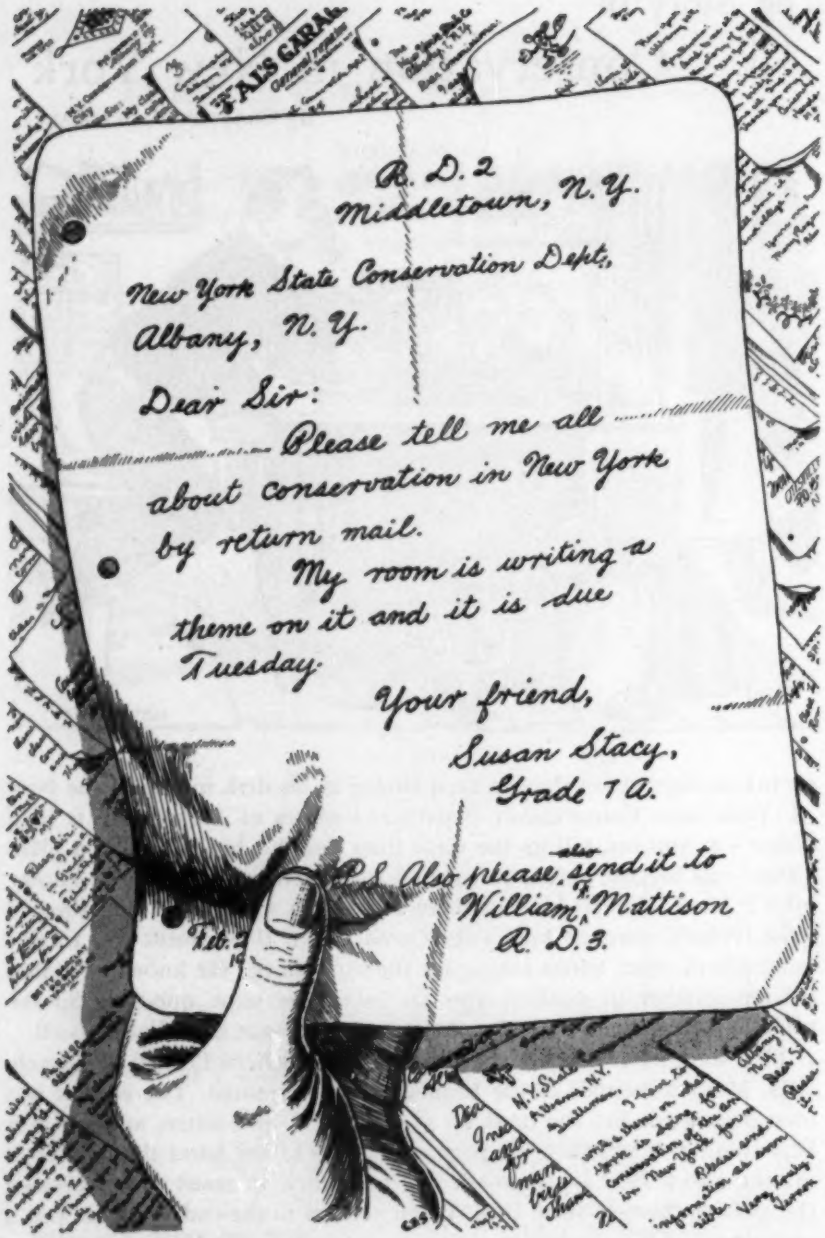
The Story of Conservation in New York

By Clayton B. Seagears



The cartoon above shows a man sitting at his desk in one of the New York State Conservation Department offices at Albany. He is in a dither – as you can tell by the wavy lines near his head. He's in a plain dither – all because he has just read a particular letter which, he knows, MUST have a special kind of reply and which will take a long time to write. What's more, he knows the Conservation Department will receive hundreds of other letters asking for the same thing. He knows, too, that a large number of teachers also are asked the same question. So the problem is to write a long, detailed letter and make it available to all.

That long letter became the Cornell Rural School Leaflet for March, 1946. Many thousands of the Leaflets were distributed. The edition was soon exhausted, but the need for it continued, and letters asking for it kept coming. If you turn the page, you can read the letter that started it all and also a 1952 reply, which had to be new in many places because things have changed since 1946. When you get to the end, we hope you'll understand WHY the long answer was, and still is, SO IMPORTANT.



R. D. 2
Middletown, N. Y.

New York State Conservation Dept.
Albany, N. Y.

Dear Sir:

Please tell me all about conservation in New York by return mail.

My room is writing a theme on it and it is due Tuesday.

Your friend,
Susan Stacy,
Grade 7 A.

P.S. Also please ~~also~~ send it to William Mattison R. D. 3.

STATE OF NEW YORK
CONSERVATION DEPARTMENT

PERRY B. DURYEA
COMMISSIONER
J. VICTOR SKIFF
DEPUTY COMMISSIONER
ROBERT A. WELLS
SECRETARY
CLAYTON B. SEAGEARS
DIR. CONSERVATION EDUCATION

ALBANY 1

DIVISION OF PARKS
DIVISION OF WATER POWER AND CONTROL
DIVISION OF LANDS AND FORESTS
DIVISION OF FISH AND GAME
DIVISION OF FINANCE

Dear Susan--and Bill:

Thanks very much for your letter. I'll bet you never expected to get this kind of reply, though.

You see we showed it to Conservation Commissioner Duryea and to Vic Skiff and told them that we were receiving many hundreds of letters--just like yours---which deserved a far more detailed reply than we possibly had time to write. So they suggested that we get together to write you a very special letter that we not only could send to you but to thousands of others like you in New York State.

They realize how very, very important it is for the boys and gals like you to understand the STORY of CONSERVATION and what it REALLY means to the future of our State and Nation.

Meantime, your friend, Dr. E. Laurence Palmer of Cornell (who retired in 1952 from the editorship of these Rural School Leaflets after getting 'em out for 33 years) had suggested that this letter be printed as one of the Leaflets. So everything worked out swell.

We hope you can read this writing. Maybe it should have been typewritten. But we can have more fun doing it by hand with gimmicks here and there and by lettering parts for more emphasis and to kinda keep it from looking too dull to read. But just for the fun of it before you turn the page and dig in-we wonder if you look something like this ~~~~→

Here we go--

When we say Conservation of natural resources we mean ALL of them of course. But right now we're most concerned with the following resources: **soil, water, forests and fish and wildlife.** There are many others -- minerals, natural gas, insects, wild flowers, reptiles and so on but will omit them here.

Now, Susan, what DID you really think that conservation meant? We say what **DID** you think because we assume you've already noticed the heading on the opposite page. Yes, Conservation means **wise use** - although most people seem to think that it means only preservation. But the first thing to remember is the meaning: wise use.

Next - you must understand that THERE ARE TWO KINDS OF RESOURCES: ①RENEWABLE and ②NON-RENEWABLE.

Fish and wildlife are renewable because they can be replaced rather quickly **if** they have been wisely used. Forests are renewable but it takes longer to grow forests. Even the life-giving fertility in the **soil** can be renewed in time - but not when the soil itself has been lost. Coal, petroleum and the like are non-renewable. However, we still must use them. The idea, then, is to make them last a lot longer by avoiding waste and by making what we DO use work harder for us.

Water, on the other hand, can't be destroyed; we can't use it up. The trouble is that we put skids under it and run it out to sea. Thus in many places where we need water - it simply isn't there to use. Often we pollute it. Polluted water can be used to make power; but it won't produce fish - or swimming - or it doesn't improve real estate values for the home owner along a stream.

On the opposite pages you'll see a few uses for natural resources. These uses - for food, fun, funds and function - are all sort of tied together. **Without these resources we simply couldn't exist!**

CONSERVATION
MEANS
WISE USE
-wise use for:
FOOD
FUN
FUNDS
FUNCTION
EAT
CLAYT SEAGEARS

LOOKIT THAT MUD HOLE DOWN THERE. I CAN'T RAISE A CROP ON THAT PIECE
GIDDUP
STOP
THE COUNTY NEEDS T' BUY MORE SNOW FENCE, BILL. THIS IS ABOUT WORE OUT
YUP- THE SNOW DRIFTED NEAR UP TO THE EAVES— COULDN'T HARDLY GET TO THE BARN
DETOUR WASHOUT
THIS IS SURE CRUMMY LOOKIN' COUNTRY. I WOULDN'T WANTA OWN A FARM HERE
BECAUSE WE CAN'T GIT 'EM TO STOCK IT- DANG 'EM
WHY AINT THERE TROUT IN THAT BROOK ANY MORE ?
DOGGONED IF A FOX DIDN'T KILL A PHEASANT AGAIN
HEY PA— GET YOUR GUN—THERE'S A WOODCHUCK UP IN TH' BRUSHLOT
I'M GONNA HAVE ME A MUSHRAT TOMORRA
CLAIT SEAGEARS

Conservation NOT at work

All you have to do to see **unwise** use of the natural resources near your home is to know WHAT to look for and then simply open your eyes. Then you won't wonder that more and more people are becoming very deeply concerned over such waste. Certainly you wouldn't deliberately pour money & good living down the drain. Yet that's just what's being done. It's a safe bet that in some places near you the soil resource already is gone forever.

Take a good look at the drawing at the left. Many of the things you see are common sights --- the wash-out on the road, the man plowing up and down hill, the bare hilltop, the gullies in the side of the hill, the rubbish in the stream, the trees cut from the stream banks and so on. There are at least 20 things wrong with the picture as far as conservation is concerned. **If you can find 6 things wrong** and tell **why** and **how** they should be corrected, you can go straight to the head of the class. THINK THIS ONE OVER

BUT IF YOU CAN FIND **10** THINGS WRONG and know what can be done to make things productive again, you're qualified to take your notebook out into the countryside around you and jot down the bad things you see PLUS the remedy. Keep your stuff practical. You'd be surprised how your community COULD benefit from this idea. BUT NO IDEA IS ANY GOOD-UNLESS --- IT WORKS FOR YOU!!! I'll bet your local newspaper editor would be interested in what you jot down.

Conservation AT work →

The drawing on the right shows exactly the same landscape as the one on page 8. **But** now conservation practices are at work and ***wise use*** is being made of the natural resources.

Nothing has been done that isn't entirely practical in most cases. Nearly anyone could do the job. **Seriously now, can't *you* see what GREAT benefit a real conservation program would be to your own land and to your community?**

Hold up this page so that you can see both drawings at the same time. See how a useless water hole can be put to work for **FUN** (picnics and, maybe, swimming), **FUNDS** (muskrat pelts), **FOOD** (fish) and **FUNCTION** (drinking supply for cattle or simply as eye-appeal).

See how gullied slopes could be planted-to a profitable crop (christmas trees)-to keep soil tied down and raindrops anchored.

See how idle hilltops should be reforested.

See how stream banks should be planted-to help the production of fish and to prevent bank erosion.

In some places, natural snow fences are **FAR** more practical than artificial ones.

These are only a few of *many* **ideas**.

REMEMBER: **no idea is any good UNLESS IT WORKS FOR YOU!**

DARNDEST THING – MY KID FIXED UP THAT MUD HOLE AND HARVESTED $75 WORTH OF MUSKRATS ON IT
SON– YOU'VE GOT A NICE CROP OF CHRISTMAS TREES –AND THEY'RE SAVING MY SOIL, TOO. SHAKE!
THIS FARM POND LAYOUT HAS GIVEN US A HEAP OF FUN. BEST IDEA WE'VE HAD IN A COON'S AGE
YEAH SUPERVISOR –THOSE SHRUB 'N' TREE SNOW FENCES ARE TH' REAL ANSWER WHEREVER WE C'N PLANT 'EM
–THEY SURE STOPPED THAT STREAM BANK EROSION, TOO. SAVED PLENTY DOUGH.
YUP– KEEP THE LAND IN REPAIR AND ALL THE REST KINDA FOLLERS ALONG AUTOMATIC
SAY– THIS COUNTRY IS FOR ME. ONCE I WOULDN'T HAVE PAID TWO BITS AN ACRE FOR IT
HOW'D IT DIE? WHO KNOWS FOR *SURE*? I DIDN'T SEE IT HAPPEN. SO THERE'S A WOODCHUCK IN TH' BRUSH-LOT? THAT'S GOOD – BUT WE DON'T WANT IT LIVIN' IN THE CROPLAND
YUP– IT'S DIGGIN' A HOUSE FOR A RABBIT NOW
CLAYT SEAGERS

On the left we have a handsome likeness of the little guy in the drawing (page 8) who is saying "...GET YOUR GUN - THERE'S A WOODCHUCK UP IN THE BRUSHLOT." But in the drawing on the back of this page he says "YUP-IT'S DIGGIN' A HOUSE FOR A RABBIT." All of which means that our small character has learned a conservation lesson between drawings. It's this:

A woodchuck *living* in actual **CROP** land MAY need to be removed because he MAY eat up more *cash* by way of farm crops than he makes cash for you by digging homes for fur bearers (*like skunks*) or food bearers (*like rabbits*). *Cottontails don't dig their own holes, you know. They depend on woodchucks.*

Well, when our little guy said that the woodchuck was in the *brushlot* - it meant that the 'chuck undoubtedly was of more value to the farm ***alive*** than defunct. *Then why pour money down the drain by killing him.* Use that woodchuck wisely~~ **that's** conservation **at work!**

The character on the right is the one who, on page 8, says- "DOGGONED IF A FOX DIDN'T KILL A PHEASANT AGAIN." But by the time he appears on page 11, he has learned an important lesson in wildlife conservation. He has learned that you can't GUESS the answers to wildlife problems. You've GOT TO KNOW *FACTS*. So *now* he says that he doesn't *KNOW* what caused the pheasant's death because he "DIDN'T SEE IT HAPPEN."

Whenever you hear anyone say definitely that this thing or that thing is THE reason why game is scarce or why it's abundant - just ask yourself whether the person has sufficient actual evidence to back up the statement - or whether it isn't pure guessing.

Remember- you can't write a prescription to fit a condition by guesswork. You MUST know the FACTS FIRST.

LET'S LEAVE IT TO RESEARCH

Read the answer given by the second fisherman on page 8. He doesn't know much about real conservation or he wouldn't say that. What would be some better answers - even though you don't know the actual reasons? After you've read pages 28 through 31 you should be able to suggest many more possible reasons why there seem to be no trout in the brook.

So never guess - or you may put conservation to work in reverse - and we can't afford to go backward.

Do you STILL follow us, Susy and Bill? If you don't, it's our fault for not making this either sufficiently clear or interesting. Keep on, though, because sooner or later you should begin to understand what conservation means and why it's so absolutely necessary for all of us to do something about it before it's too late.

Let's take another look at pages 8 and 11 and see some more things that need to be done and how to do them.

• Well, there's that mudhole at the upper left. It's a waste spot. Fence out the cattle. Plant it up a bit with muskrat food and before long there'll be a fur crop far more valuable than almost any other crop that could be grown on a piece two or three times the size.

Muskrat crop growing

• By the way--that boy setting the trap at the bottom of the drawing.... he's doing wrong, of course, because it's out of season. But that's not all -- the muskrat (if he catches one) will not have a prime pelt and so will be valueless. If the boy would spare the "rat" until the trapping season he probably would get $3 or so for it.

• See that bare hill top on the horizon? It should NEVER have had all the trees cut off it. NOW - erosion and floods can start. It should be reforested at once. The more gentle slopes should be terraced with hedges and ditches along the contour. The eroded, useless hill beyond the silo could be planted to a Christmas tree crop. They'd be soil anchors, too, and thus would pay extra dividends.

• That man plowing up and down hill: Certainly he knows he can't grow a crop without fertile top soil. Yet he's getting rid of it as fast as possible by making ditches for the rain to sluice it off.

Look at the farms around you. See how many places there are where the plow furrows run up and down the grade. Do we need conservation?

Now let's see how your New York State Conservation Department is set up to do the job of maintaining and dealing out our natural resources - not only to make them last L-O-N-G-E-R but also to make them available for the most people to use in the most profitable way. And by PROFITABLE WAY - we mean most profitably for today AND for tomorrow - for health, for pleasure and for the economic prosperity of ourselves, our community, our state and, of course, our nation.

★☆★☆★☆★☆★☆★☆★☆★

★ Never forget that America ★
☆ is great because of her ☆
★ natural resources. ★
☆ When THEY fail - WE fail! ☆
★ Have any resources ★
☆ failed near ☆
★ your school ??? ★
Is there any tax-poor land in your area ??
☆

78 STATE PARKS
32 BIG PUBLIC CAMP-SITES
15 GAME MGT AREAS
30 GAME FARMS & FISH HATCHERIES
½ MILLION ACRES OF STATE FORESTS
2½ MILLION ACRES OF ADIRONDACK & CATSKILL FOREST PRESERVE
THIS MAP ROUGHLY SHOWS YOUR STATE LAND. ITS MORE THAN YOU THOUGHT, ISN'T IT? SEE BELOW

Your State covers 54,000 sq. miles with 6,000 sq. mi. under water. We have about 13½ million people - which gives only about 2 acres per person. Populations are growing all the time. SO ISN'T IT WISEST TO MAKE EACH ACRE PRODUCE INCREASINGLY GREATER YIELDS - whether it's food, wood, clean water, recreation or anything else for the public good?

➡ NOW of those 2 acres per person, the State - (and that means you and me) owns nearly ¼th of an acre - or more than 3 million acres - which are open to public recreation, the growing of trees and the safeguarding of water supplies!! Under the law your Conservation Dep't not only must administer that huge area but it also must take care of many other resources as well. Turn the page to see how it is organized to do that BIG job ➡

ORGANIZATIONAL & FUNCTIONAL CHART

COMM SS

DEPUTY CO W

★ **DIVISION OF CONSERVATION EDUCATION**
Handles education & information through publications, press, exhibits, motion pictures, photos, radio, lectures, camps, The N.Y.S Conservationist etc.

★ **DIVISION OF FISH & GAME**
Maintains State's fish and wildlife resources thru management, propagation, research and protection. (Bureaus below)

DIV. OF PARKS
Supervision over some 70 State P'ks and network of p'kways. Ten regions—each administered by separate Com'sn

★ **DIV. OF FINANCE**
Prepares budget and payrolls. Supervises purchases & expenditures. Distrib. licenses to agts and accounts for sales.

BUREAU OF FISH CULTURE
Grows fish for restocking at 23 hatcheries and rearing stations. Conducts propagation research. Distributes fish.

BUR. OF FISH & WILDLIFE INVESTIGAT'NS
Conducts field studies & research projects. Supervises fish mgt & pollution control. Prepares reports

BUR. OF INLAND FISHERIES
Regulates commercial inland fisheries. Also issues various special licenses. Issues tip-up fishing orders.

BUREAU OF MARINE FISHERIES
Regulates marine shell fisheries. Includes sanitation unit operation.

BUREAU OF LAW ENFORCEMENT
Enforces Conservation Law & Dep't rules to protect fish & wildlife. Maintains force of 163 game protectors.

GAME MG'T UNIT - Conducts field work. Coordinates 9 DISTRICT Game offices. Operates 22 game mg't areas. Controls animal nuisance
ENGINEERING UNIT - Plans & builds

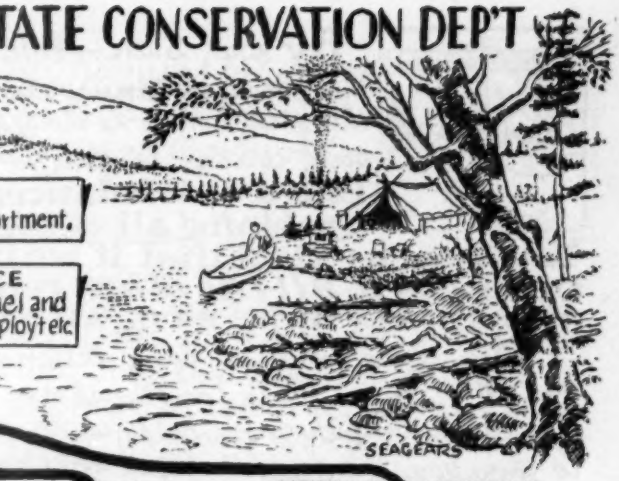
BUREAU OF GAME FARMS
Grows game for restocking at 7 game farms. Handles distribution of game, etc.

★ - *The Division of Fish & Game is financed entirely by license fees paid by sportsmen and by fines. The Division of Finance and the Div. of Cons. Education also are partly financed by the sportsmen's license money. ALL OTHER*

~NEW YORK STATE CONSERVATION DEP'T

SSIONER

MISSIONER



SECRETARY
Office of record for Department.

PERSONNEL OFFICE
Handles Dept's personnel and efficiency problems, employ't etc.

DIV. WATER PWR & CONT.
Allocates State's available water resources to communities for present & future need. Superintends drainage of land.

DIV. SARATOGA SPGS
Maintains and operates State-own'd health Spa at Saratoga Springs.

DIV. OF LANDS & FORESTS
Maintains: 2½-million-acre State Forest Preserve plus recreational facilities therein; reforestation program; forestry work, fire cont. etc.

BUREAU OF CAMPS & TRAILS
Develops, maintains & operates big campsites & forest recreation facilities in Adirondack & Catskill areas, including hundreds of miles of trails, shelters, bob run etc.

BUREAU OF STATE FORESTS
Acquires, maintains & plants reforestation areas (now 500,000 acres in 33 counties). Directs huge program for reforesting idle land.

BUR. OF FOREST MANAGEMENT
Studies forest growth rate, insect & disease occurrence. Compiles forest resource data. Handles F.P.Act.

BUREAU OF FOREST FIRE CONTROL
Prevents, detects & suppresses forest fires in areas within State jurisdiction. (17, 750,000 acres). Maintains scores of fire towers, 100 forest rangers, 2,700 wardens, etc.

BUREAU OF NURSERIES
Grows & distributes forest trees for reforestation. Operates Lowville & Saratoga nurseries, latter world's largest

BUREAU OF FOREST PEST CONTROL
Conducts programs to control blister rust, gipsy moth & other forest tree diseases through State.

BUREAU OF LAND ACQUISITION
Handles land acquisition for the entire Dep't. Maintains maps of State lands. Directs forest surveys

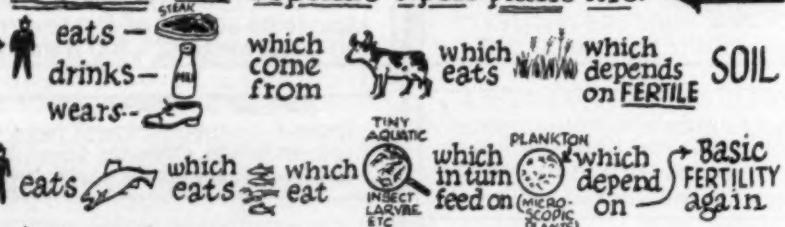
→ activities of the Department are financed by the General Fund. At present (1952) The division of *Fish & Game is being reorganized

By now, Susie + Bill, you should see that modern conservation isn't just something that has to do separately with soil, water, timber, fish and wildlife. **It is a well-balanced program combining all of them.**

You see, we find that if we take care of our LAND, *all the other* renewable natural resources thrive along with it.

We could write a long letter on JUST SOIL ALONE – or on game conservation. But we think it would be far more helpful to you if we tried to give you the highlights of each of the important natural resources in this one letter. Suppose we start with **SOIL** – since it's our NO. 1 RESOURCE.

- The quality and the amount of plant life depend on the quality and the amount of **SOIL** *plus* the fertility it contains.
- Animal life depends upon plant life.



You could make countless other chains yourself to show that without FERTILE soil – plants wouldn't exist – without which animals wouldn't exist.

YES, *fertile topsoil is by far our most precious resource. Without it we couldn't live.* YET SINCE MAN STARTED FARMING THE U.S. WE HAVE **LOST ⅓ OF IT!**

YESTERDAY Our pioneers cut, cleared and planted the first land they came to - regardless of what lay beyond in the West. They didn't know about soil conservation - and they didn't care - for wasn't there plenty of land?

In New York they were farming 23 million acres by 1885. That was the peak. Then they found out that they had made a mistake on 5 million of those acres after years of bitter experience. The soil was too thin or too poor or the slopes too steep to make profitable farming possible. *So those 5 million acres in this state were abandoned - given up as lost!* That's a lot of land, too, - ALMOST TWICE THE AREA OF THE WHOLE STATE OF CONNECTICUT!

Look around you, Susan and Bill, and you'll see the old stone walls and the old foundations that marked those 5 MILLION acres of used up land.

TODAY *Much has been learned about what NOT to do with our land - what there is left of our fertile topsoil. But only a pitiful FEW people actually have applied that knowledge.*

In addition to the loss of topsoil - *which can be* seen, there's a loss of life-giving fertility *even* where topsoil remains. We're not putting back the humus - with green or with animal manure; we're not putting back lost nitrogen - with legumes *(alfalfa, peas etc.)* and we're not ROTATING our crops. Often you still see people *intentionally* burning the fields - a practice which destroys humus and merely sets the stage for erosion. Just look at the land around you. DOES ANY look like page 8?

Remember the drawing on CONSERVATION NOT AT *work. All those ruinous practices are common today. WE'RE STILL DUMPING MILLIONS OF TONS OF THAT PRECIOUS RICH SOIL INTO THE OCEAN EACH YEAR!*
THERE IT GOES - *WHENEVER* THE RIVERS RUN MUDDY.

TOMORROW - THIS IS THE BIG QUESTION. It all depends on ① *how many of us can be taught to understand how VITALLY important soil conservation is (just as we're trying hard to show YOU)* and ② *how well we actually apply the lessons to the land.* If you all do a good job of applying this lesson (*one way to do it-if you have no land to work on- would be to help teach others and to support and help the State's program*) we should have a country which will look more like the drawing "CONSERVATION AT WORK." (*page 11*). *Then* we won't worry so much about the future.

WHAT YOUR STATE IS DOING ABOUT SOIL CONSERVATION

Fortunately in New York we have several important agencies which are putting their shoulders to the wheel to help lick our soil conservation problems. For example, the NEW YORK STATE COLLEGE OF AGRICULTURE and the AGRICULTURAL EXPERIMENT STATION are hard at work finding THE FACTS we need to know about our soil.

The EXTENSION SERVICE at the COLLEGE is busy getting these facts out to us through bulletins, demonstrations, radio and through the well-trained corps of COUNTY AGENTS.

As for getting the job done on the farm, local SOIL CONSERVATION DISTRICTS are now organized under STATE LAW IN MOST COUNTIES (with more to come) to help farmers help themselves. The SOIL CONSERVATION SERVICE helps these DISTRICTS with their problems and your STATE CONSERVATION DEPARTMENT pitches in to help with such important programs as stream bank control and the huge reforestation deal which we'll tell you about later. The State also has a Soil Conservation Committee at work.

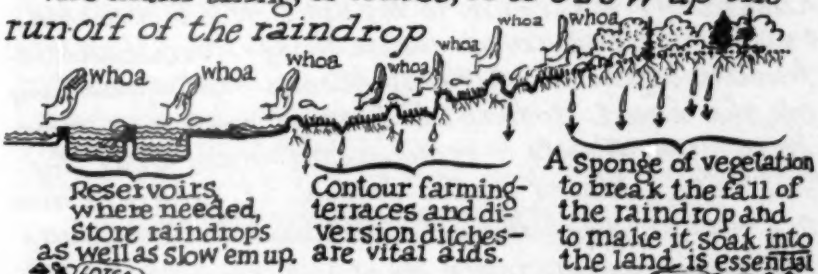
But EVERYBODY MUST PUT HIS SHOULDER TO THE WHEEL AND KEEP PUSHING *JUST AS LONG AS OUR BROOKS AND RIVERS ARE MUDDIED AFTER EVERY RAIN WITH OUR TOPSOIL GOING OUT TO SEA* ←

Soil *all by itself* will not sustain life *without water.* As we pointed out on page 6 of this letter, water – *unlike fertile topsoil* – can't be destroyed. But we're running it out to sea so fast that ① *it's taking the topsoil with it and* ② *it gets no chance to sink into the underground reservoirs so that it's available to feed the springs and brooks during Summer dry spells when we most need it.*

FORTUNATELY, ALMOST EVERYTHING WE DO TO SAVE THE SOIL ALSO CONSERVES WATER.

Here are what we'll call the essentials of water conservation:

The main thing, of course, is to S-L-O-W up the run-off of the raindrop


whoa
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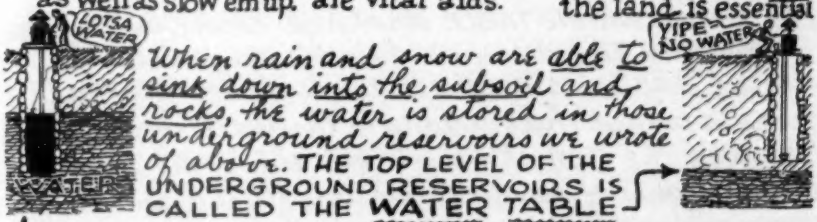
Reservoirs where needed, store raindrops as well as slow 'em up.
Contour farming-terraces and diversion ditches-are vital aids.
A Sponge of vegetation to break the fall of the raindrop and to make it soak into the land is essential



When rain and snow are able to sink down into the subsoil and rocks, the water is stored in those underground reservoirs we wrote of above. THE TOP LEVEL OF THE UNDERGROUND RESERVOIRS IS CALLED THE **WATER TABLE**

If we can make the surface water *sink in* sufficiently to keep the buried reservoirs full, the *WATER TABLE* will be high enough to keep water in the wells as well as keep springs going.

Have any wells in YOUR community gone dry in recent years? *There MAY be more than you think. IN SOME STATES THE WATER TABLE HAS FALLEN SO LOW THAT FACTORIES USING WELL WATER ACTUALLY HAD TO CLOSE!*

Another essential of water conservation is *that it be kept CLEAN AND PURE* – **free from pollution**--- *so that it is fit to drink, to swim in, to produce fish or even just to live near it or look at it.* **Polluted water is lost water for** *most of its uses.*

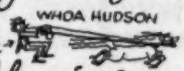
Modern devices for waste disposal would stop this nuisance at its source.

YESTERDAY - The things our pioneers did to the land were just as wasteful to water because the skids were put under the raindrops and they were rushed OFF the land to the sea. Floods occurred on the scalped land where they never had been problems before. And those floods kept smoothing off the land so that it became more and more easy for floods to occur as the years went by. In many places, water found it easier to run off the surface than to sink in. In those places the vital WATER TABLE dropped lower and lower.

Communities dumped their sewage into the rivers. Factories and all kinds of commercial plants added their wastes to the waters of our state. It was the easiest way to get rid of the stuff. All thoughts of conservation were flushed down the drain.

TODAY - Much of what we said on page 19 about soil conservation practices also holds true here. While we know how brakes can be put on the run away raindrop, we're still devising ways and means of applying the brakes after floods get started. Engineers are constantly at work on the problem and many curbs are now functioning.

For example, the largest water-regulating device we now have is the giant SACANDAGA RESERVOIR. It is 27 miles long, has an area of 42 square miles, is thus only slightly smaller than Lake George and controls the flow of water down the mighty Hudson.

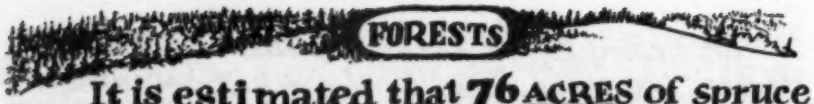


So far as today's pollution problem is concerned ---- much has been done to lick it but, unfortunately, we still have a long way to go before many of our streams and rivers can be restored to reasonable purity. Scores of communities have installed efficient sewage disposal plants; many factories of one kind or another have built effective waste disposal units. But hundreds of others still dump, *dump, dump!!!!*

TOMORROW - Much again depends on how many hands get to work on the job of slowing up the raindrops *where they fall* - before the floods begin. *Wise laws plus education and* public support - *active* support - should lick pollution hands down.

WHAT YOUR STATE IS DOING ABOUT WATER CONSERVATION

All the agencies listed on page 20 as working hard on soil problems also are battling water waste. Also, two Conservation Dept agencies are at work on water usage. These are the Division of WATER POWER & CONTROL and, in the Division of Fish & Game, the POLLUTION UNIT. The latter is a mobile outfit which tests water samples and determines whether the polluting agent has violated the Conservation Law by actually killing fish. But the most important and far-reaching program is that handled by the State's Pollution Control Board as a result of the new Pollution Law, enacted in 1949. This law provides the machinery to control and abate pollution from any source during the years to come. Two River Regulating Districts operate various State reservoirs - like Sacandaga. The important Flood Control Commission meshes N.Y. and Fed. programs



It is estimated that 76 ACRES of spruce trees must be cut to make the paper to print New York City's newspapers for *just ONE* Sunday!

It is estimated that the people living in New York state use up more pounds of paper per year than meat ~or about 3 billion pounds!

YET FORESTERS TELL US THAT *ONLY* 5% OF ALL THE TIMBER CUT EACH YEAR IS USED TO MAKE PAPER!

WOW!

YESTERDAY– The enormous amount of virgin timber which the pioneers cleared off the face of New York would be worth billions today. But there was no one to buy it in those days– so it was piled and burned.

When the country became populated, lumber was in great demand. Our mountain areas were invaded by lumber jacks. Soon, millions of feet of big pine saw logs began floating down the rivers. Later, they came back to take the pulp-the spruce and balsam for paper and pulp. So today all we have is second growth timber except on some parts of the protected State Forest Preserve in the Adirondacks.

Our farms and wood lots were cut over and over for saw logs and fire wood. The forests became scrubby and of little value because of mis-management. CATTLE WERE ALLOWED TO GRAZE IN THE WOODLOTS SO THAT MILLIONS AND MILLIONS OF YOUNG TREES, WHICH SHOULD HAVE BEEN AVAILABLE AS REPLACEMENTS, WERE DESTROYED.

Many thousands of acres of forests were burned-unchecked– because there were no adequate agencies available to fight the fires. The soil was burned out, too, so that second growth was prevented.

TODAY ~ We are forced to import most of our lumber and pulp - ALTHOUGH WE HAVE *ENOUGH* LAND WHICH IS BEST SUITED TO THE GROWING OF TIMBER TO MEET MOST OF OUR NEEDS. That should be significant.

TOMORROW ~ Will we recloak our denuded lands with high-quality timber? Will we, by fencing off our woodlots to keep out cattle, by practicing better forest management of what we already have and by continued big-scale reforestation, make our trees produce the income that they should - and must - in terms of cash and in terms of soil, water, recreation and fish & wildlife dividends? ???? ?? ??? ??? ?? ?? ?? ?? ?

We will - that's for sure - but how soon and how well depends largely on how well today's boys and girls understand WHAT we must do and WHY we must do it. PLEASE, PULEEZE kids this IS important!

WHAT YOUR STATE IS DOING ABOUT ITS FORESTS

The New York State Reforestation Program..... that's a pretty fancy title - but it's a fancy job. Remember the 5 million abandoned acres we told you about back on page 19? Well we're very proud to say that your State already has acquired well over a half-million acres of that land AND has reforested it with more than **300 MILLION** TREES! Brother - that's a pile of trees. And that's not all --- because all kinds of other private and public agencies have been and STILL (thank goodness) are at work planting million upon million more trees on other idle land. There are municipal forests - and county forests - and even **SCHOOL** forests. Maybe YOUR school has one. If not - it really SHOULD have. Although your State proudly leads all the rest in the tree-planting department --- the job is really only getting underway. In recent years the program has been stepped up because much of the remaining 4½ million acres of

abandoned farmland also, of course, needs a reforestation job.

In your lifetime, Susan and Bill, you'll see these young forests start to produce income to the State from the sale of timber. Already they have provided income from the sale of Christmas trees taken out during the necessary thinning operations. These are the "CERTIFIED" Christmas trees you may have read about or bought for your holiday use.

In order to plant trees, there naturally must be young stock available to plant; so the Conservation Department operates an extensive nursery system--- the plant at Saratoga being the world's largest forest tree nursery.

Although you may not realize it, the Department maintains constant, organized warfare against insect pests and tree diseases which, if left unchecked, might wipe out most of our forests in no time. Main efforts right now (no telling what might show up next) are directed against the Gipsy moth, the white pine blister rust and the spruce bud worm.

No use telling you about the need for forest fire prevention and control. You must already know it. You may NOT know, however, that your Conservation Department is responsible for doing a real job on a forested area FOUR TIMES THE COMBINED SIZE OF YELLOWSTONE & YOSEMITE NATIONAL PARKS. To do this job, New York uses 94 FIRE TOWERS and their OBSERVERS, 100 FOREST RANGERS, 2,700 FIRE WARDENS, 53 SPECIAL FIRE TRUCKS, 100 MOTOR PUMPS, 37 RADIO TRANSMITTERS, 500 MILES OF WILDERNESS TELEPHONE LINES AND VERY LARGE QUANTITIES OF JUST PLAIN SWEAT. THERE'S A PLANE, TOO!

Since 1946, New York State's popular Forest Practice Act has been at work making private woodlands healthier and more productive via the help of the Department's Bureau of Forest Management and its large staff of highly trained Foresters. Under this Act, co-operators agree to use a systematic plan of managing their woodlands and in return get practical help from the Foresters as well as free seedling trees from the State. By 1952, more than 3,000 woodland owners had signed up as FPA co-operators and had placed a million acres of private woodland under the plan of management. What's more - those co-operators planted in a single year nearly 5 MILLION State-provided trees! THAT'S REAL PROGRESS.

~ ~ ~

The State College of Forestry at Syracuse is a very important agency. It teaches, gets out information through its EXTENSION SERVICE and it finds new uses for wood and wood products by means of its laboratories, experimental pulp and paper plants, kiln, saw mills etc. A department of the College is the N.Y. State Ranger School at Wanakena where a 1-yr. practical training course is given.

~ ~ ~

The State College of Agriculture at Cornell also helps landowners with their woodlot problems through its EXTENSION SERVICE and its COUNTY AGENTS.

~ ~ ~

STATE FOREST PRESERVE. *The State reforestation areas (CALLED STATE FORESTS) OUTSIDE the Adirondack and Catskill State Park counties can be cut for timber as we said on the previous page. But the State land in the Adirondacks and Catskills is called The FOREST PRESERVE. The State Constitution decrees that this 2½ million acres must remain "forever wild" and that the trees on it shall never be cut, removed or destroyed. Thus every bit of it must remain as a sort of wilderness museum - whether in the beautiful "HIGH PEAK" country, the cherished remote primitive wilderness of much of its interior, the shores of its fine wild lakes and ponds or its miles of much less picturesque roadside which may be far from wild. In 1952 an Advisory Committee (acting in behalf of the Joint Legislative Comm. on Natural Resources) began to study the question of the Forest Preserve to help determine, for example, whether or not it would be wise to let the State do some scientific forestry on certain parts of it.*

FISH & WILDLIFE

NOW we're on the home stretch and, instead of getting writer's cramp (which we certainly should have by now) we're all steamed into action -- for this particular subject is, to many people, perhaps the most interesting of all. Certainly it's the most controversial (25¢ word) and one of the least understood. That's easy to understand, though, because the science of wildlife management has only been developed in recent years. Forestry, for example, is far, far older.

It's very important that you understand a few basic things about the fish and wildlife problem. What we'll try to tell you may be extra hard for you to understand because it's so complex. Anyway it needs special concentration. This is it:

Fish and wildlife reproduce themselves, of course. That's simply Nature's way of maintaining life. During this process of reproduction there are often surpluses which can be harvested by Nature or by Man. *The* ***BIG PROBLEM*** is to maintain the populations of fish and wildlife *so that there will be enough breeders* TO PRODUCE SURPLUSES *large enough to meet the demands of both Man and Nature year after year.*

And right here and now let us point out that the task of licking *that* problem is *REALLY something!*

The problem is doubly complicated because there are so many *conflicting* interests to be served. *Take the case of the fox* -- THE TRAPPER WANTS MORE FOXES BECAUSE OF HIS FUR -- THE APPLE GROWER WANTS MORE FOXES BECAUSE FOXES EAT RODENTS WHICH RUIN APPLE TREES --- THE HOUNDSMAN WANTS MORE FOXES BECAUSE FOXES PROVIDE SPORT --

MANY NATURE LOVERS WANT MORE FOXES BECAUSE THEY LIKE TO SEE THEM OR BECAUSE THEY SIMPLY LIKE TO KNOW THAT BRER FOX IS AROUND. BUT ON THE OTHER HAND, SMALL GAME HUNTERS AND POULTRYMEN USUALLY WANT NO PART OF THE FOX-EXCEPT HIS DEAD CARCASS. THERE'S YOUR CONFLICT OF INTERESTS. HOW SHOULD YOU MANAGE FOX POPULATIONS SO THAT THE BEST INTERESTS CAN BE SERVED?

MULTIPLY THE FOX MANAGEMENT PROBLEM BY ABOUT 77 DOZEN OTHERS AND YOU'LL UNDERSTAND WHY THERE'S NEVER A DULL MOMENT IN THE ADMINISTRATION OF YOUR FISH AND WILDLIFE RESOURCES

****

THERE ARE 5 MAIN TOOLS USED TO BATTLE THE PROBLEM OF FISH AND WILDLIFE CONSERVATION. THEY ARE: ① RESEARCH, ② MANAGEMENT, ③ PROTECTION, ④ ARTIFICIAL PROPAGATION AND ⑤ EDUCATION.

RESEARCH - FINDS OUT HOW TO GROW ADEQUATE CROPS.

MANAGEMENT - APPLIES THE FINDINGS OF RESEARCH.

PROTECTION - REGULATES THE SIZE OF THE HARVEST.

PROPAGATION - PROVIDES FISH AND GAME FOR RESTOCKING.

EDUCATION - GETS AS MANY SHOULDERS AS POSSIBLE TO PUSHING ON THE RIGHT WHEEL.

****

RESEARCH has found out many things about fish and wildlife. YOU should realize, for example, that there are 10 factors (KNOWN SO FAR) that control the abundance of any species of wildlife. They are: ① FOOD AND WATER ② GENERAL HABITS - *(is the species dumb and thus easily killed? is it fast or slow? etc.)* ③ REPRODUCTIVE CAPACITY - *(does it have many young at a time? Does it breed several times a year? etc.)* ④ WEATHER - *(was the nesting season to wet or too cold? Was the snow too deep for the species to get food? etc.)* ⑤ ENEMIES - *(does it have many or few? etc.)* ⑥ MAN *is the species affected by Man's axe, plow, fire brand, drainage projects, guns, traps, automobiles? etc.)* ⑦ DISEASES AND PARASITES. ⑧ PHYSIOLOGY OF THE SPECIES - *(does it have good resistance? is it tough to kill? does it have protective coloration? etc)* ⑨ EASE OF ARTIFICIAL PROPAGATION - *(can the species be reared in captivity and effectively stocked?)* ⑩ SHELTER.

THERE ARE STILL OTHER FACTORS BUT THESE ARE THE MAIN ONES.

There are even *more* factors affecting fish populations. Here are only *some* of them: *The water temperature, chemical composition, fertility and turbidity,* pollution, food, diseases and parasites, shelter, Man, living space, enemies, spawning conditions, physiology of the species, general habits, water level fluctuations, drought *(weather),* floods, ice, wave action etc, etc.

So, Susan, you can readily understand that *all* factors must be considered -- and the facts really understood before *anyone can come right out and say that* this thing or that thing is the matter with fish or wildlife populations. *We've simply repeated that for emphasis.*

HERE'S ANOTHER IMPORTANT THING TO UNDERSTAND: UNLIKE MAN, FISH AND WILDLIFE ARE USUALLY VERY SHORT LIVED. THERE'S ALMOST A *COMPLETE* POPULATION TURNOVER *EVERY 2 OR 3 YEARS.* TO HAVE GOOD HUNTING AND FISHING, THEREFORE, *NATURE MUST PRODUCE A CROP EACH YEAR. Two or three years of unfavorable conditions (LIKE THE WET PHEASANT-NESTING SEASONS OF 1943-'44-'45) can produce a critical shortage.*

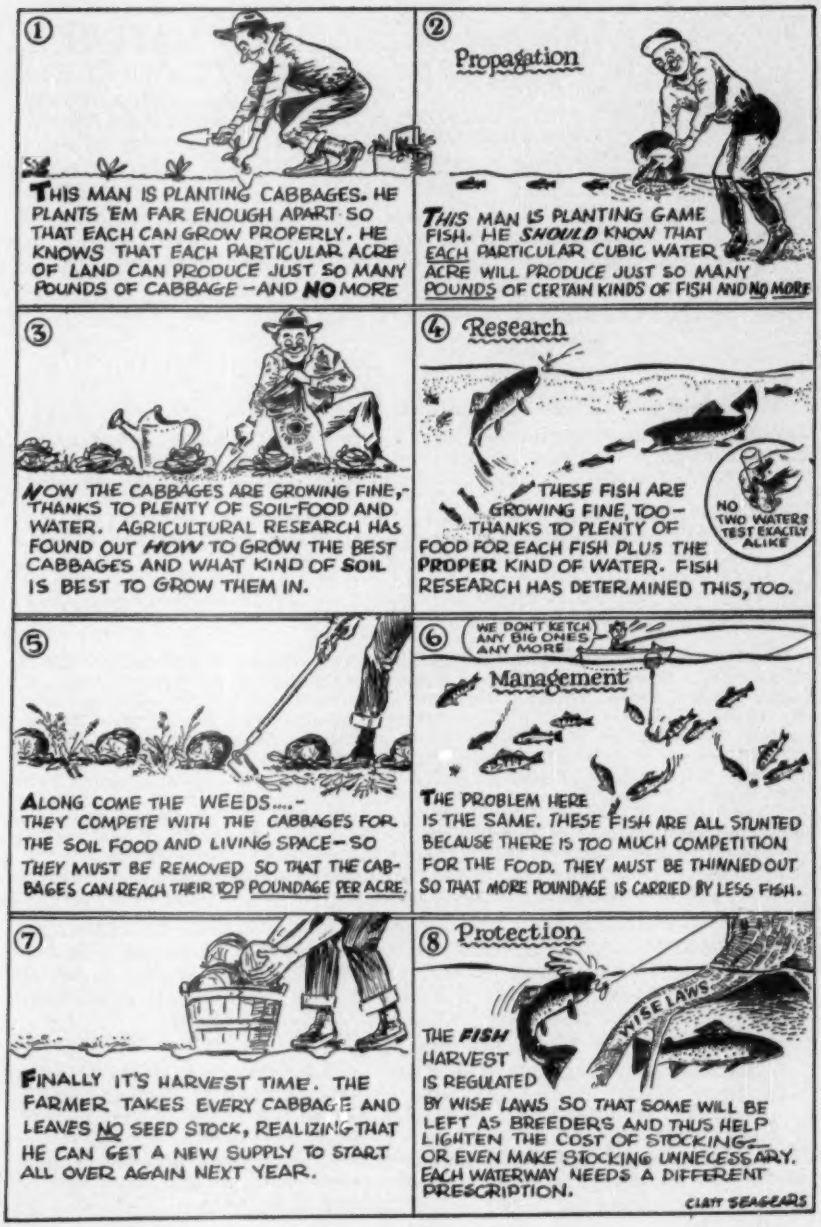
ONE THING MORE: EACH PIECE OF LAND OR WATER WILL SUPPORT ONLY JUST SO MUCH FISH OR WILDLIFE - NO MORE. LOOK AT THE DRAWING OPPOSITE, TO SEE WHAT WE MEAN. →

YESTERDAY- *Man's axe, plow and extended frontiers pushed the MOOSE, ELK, WILD TURKEY and a few others OUT OF N.Y. Deer were completely wiped out of the Catskills. Only a very few were left in the Adirondacks. None were left in the rest of the state. By 1900 beaver were all gone but 4 or 5! The passenger pigeon was out. Pollution and over-fishing almost erased the shad from the Hudson. Brook trout gave up in hundreds of streams. It was a very dark and dismal outlook.*

TODAY- *although the hunting and fishing pressure is far, far greater than it used to be* [there are now more hunters & fishermen in New York than the combined total populations of the states of Del., N.H., Nev., Vt., & Wyoming], *the tools of conservation have been at work. Now every county has deer and - most of them - beaver. The pheasant has been introduced as has been the brown trout to provide fishing in streams where brook trout can't survive.*

Rod & reel fishermen caught about 15½ MILLION POUNDS IN NEW YORK'S INLAND WATERS ALONE IN 1945. IN THE LAST 10 YEARS N.Y. HUNTERS HARVESTED ABOUT 6 MILLION PHEASANTS AND 25-30 MILLION COTTONTAILS. NEW YORK'S ANNUAL FUR TAKE EXCEEDS ALASKA'S.

BUT THERE ARE ***NOW SO MANY*** PEOPLE WHO WANT TO SHARE IN THE ANNUAL HARVEST THAT IN MANY AREAS NATURE ALONE CAN'T PRODUCE ENOUGH SURPLUSES TO GO ROUND ANY LONGER!


①
THIS MAN IS PLANTING CABBAGES. HE PLANTS 'EM FAR ENOUGH APART SO THAT EACH CAN GROW PROPERLY. HE KNOWS THAT EACH PARTICULAR ACRE OF LAND CAN PRODUCE JUST SO MANY POUNDS OF CABBAGE—AND NO MORE
②
Propagation
THIS MAN IS PLANTING GAME FISH. HE SHOULD KNOW THAT EACH PARTICULAR CUBIC WATER ACRE WILL PRODUCE JUST SO MANY POUNDS OF CERTAIN KINDS OF FISH AND NO MORE
③
NOW THE CABBAGES ARE GROWING FINE,—THANKS TO PLENTY OF SOIL-FOOD AND WATER. AGRICULTURAL RESEARCH HAS FOUND OUT HOW TO GROW THE BEST CABBAGES AND WHAT KIND OF SOIL IS BEST TO GROW THEM IN.
④ Research
THESE FISH ARE GROWING FINE, TOO—THANKS TO PLENTY OF FOOD FOR EACH FISH PLUS THE PROPER KIND OF WATER. FISH RESEARCH HAS DETERMINED THIS, TOO.
NO TWO WATERS TEST EXACTLY ALIKE
⑤
ALONG COME THE WEEDS....—THEY COMPETE WITH THE CABBAGES FOR THE SOIL FOOD AND LIVING SPACE—SO THEY MUST BE REMOVED SO THAT THE CABBAGES CAN REACH THEIR TOP POUNDAGE PER ACRE.
⑥
WE DON'T KETCH ANY BIG ONES ANY MORE
Management
THE PROBLEM HERE IS THE SAME. THESE FISH ARE ALL STUNTED BECAUSE THERE IS TOO MUCH COMPETITION FOR THE FOOD. THEY MUST BE THINNED OUT SO THAT MORE POUNDAGE IS CARRIED BY LESS FISH.
⑦
FINALLY IT'S HARVEST TIME. THE FARMER TAKES EVERY CABBAGE AND LEAVES NO SEED STOCK, REALIZING THAT HE CAN GET A NEW SUPPLY TO START ALL OVER AGAIN NEXT YEAR.
⑧ Protection
WISE LAWS
THE FISH HARVEST IS REGULATED BY WISE LAWS SO THAT SOME WILL BE LEFT AS BREEDERS AND THUS HELP LIGHTEN THE COST OF STOCKING—OR EVEN MAKE STOCKING UNNECESSARY. EACH WATERWAY NEEDS A DIFFERENT PRESCRIPTION.
CLAIT SEAGEARS

MAN *now must give* KID NATURE a helping hand in most places to aid the crop of fish and wildlife: So one of the Division of Fish & Game's largest programs (it's called P-R 48D for short by the book-keepers) helps the farmer with fencing (to keep cattle outa th' woodlot), with tree and shrub planters, with farm pond digging and with a lotta other things. All this helps save the farmer's soil, water, trees and time and it makes the farm much MORE VALUABLE. And at the same time all these things help wildlife!!!

NOW CATTLE CAN'T RUIN YOUNG TREES GROWING AS NEW WOODLOT CROP

FARM PONDS ARE GREAT ASSETS IN MANY, MANY WAYS

A GOOD MULTIFLORA ROSE HEDGE KEEPS IN STOCK. PRETTY TOO.

EVERYBODY KNOWS THE VALUE OF PLANTING TREES ON OLD LAND

* * * *

Sooo-o-o here we are on the last page with only a little space left and, really, with the surface hardly scratched- We can only hope that we've helped you understand:
(1) How badly we have abused our vital natural resources
(2) Why it's so very necessary that we do something about it
(3) What we CAN do about it.

Remember that your Conservation Department has all kinds of experts to help do the job and to give out the "know how." It has: Pollution sleuths, RANGERS, *District Wildlife and Fisheries Managers,* GAME PROTECTORS, *Foresters,* ENGINEERS, *plane pilots,* PATHOLOGISTS, *Trappers,* MANY KINDS OF RESEARCHERS, *Camp specialists,* EXHIBITS BUILDERS, CAMERAMEN, *chemists,* BULLDOZER JOCKEYS, *Bacteriologists,* ICHTHYOLOGISTS *(is that spelled right?),* BOTANISTS, *Agronomists,* NUTRITIONISTS, *Fish Culturists,* MACHINISTS, *Game Farmers,* STATISTICIANS, *Surveyors,* MAPPERS, EDITORS, *Administrators,* LOGGERS, *Recreation Specialists,* SHELLFISH CHECKERS, *Truckmen,* BUILDERS, *Nurserymen,* FISCAL EXPERTS, *Caretakers,* LIFE GUARDS, *Technologists,* FARMERS, *Fire Tower Observers,* FOREST INSECT PEST SPECIALISTS, *Forest Economists,* HYDRAULIC ENGINEERS, ZOOLOGISTS, *Parasitologists, Bugologists* etc. (WE'VE RUN OUT OF SPACE)

And incidentally, kids, if you're interested in Conservation as a life work - and the future REALLY NEEDS YOU - *look into the possibilities of Cornell's Department of Conservation or the State Coll. of Forestry. Meantime, those Summer 4-H Camps now have a lot of conservation work, while the State Conservation Dept operates 4 large Conservation Education Camps for boys 12-17. We'll send leaflet.*

* * * *

Really now, Susie & Bill, don't you agree that conservation is far more important than you thought? We've ALL GOT to help!!

Finally, we want to say that it has been a lot of fun for us all to help write this letter. Just really go to town when you write that theme of yours. The Commissioner & all the rest of us hope you land an "A." Goodbye - & thanks for writing. Sincerely yours

Clayt Seagears

DIR. CONSERVATION EDUCATION